



特种计算机

Embedded Computer

产品说明书

User Manual

PPC-1261

12.1" 平板电脑

12.1" Panel PC

Version: C04

Legal Information

Warnings

Please pay attention to the tips within the manual so as to avoid personal injury or property losses. The tips for personal injury are indicated in warning triangles while the tips only related to property losses have no warning triangles. The warning tips are listed as follows with the hazardous scale from severe to slight.

Danger

If handled carelessly, death or severe human injury will occur.

Warning

If handled carelessly, death or severe human injury might occur.

Caution

Warning triangle indicates that slight human injury might occur if handled carelessly.

Note

Unexpected result or status might occur, if not handled according to the tips.

Professional Personnel

The product/system covered by the manual can only be handled by qualified and professional personnel. During operation, please follow the respective instructive manuals, especially the safety warnings. The professional personnel have been trained and possess relevant experiences; therefore, he/she could be aware of the risks of the product/system and avoid possible damages.

EVOC Product

Please pay attention to the following instructions:

Warning

EVOC product can only be used according to the descriptions within the manual, including the contents and the relevant technical documents. If the products or components from other companies are required, please get the recommendation and grant from EVOC first. Proper transportation, storage, assembly, installation, debugging, operation and maintenance are prerequisite to ensure product safety and normal operation; therefore, please ensure permitted environment conditions and pay attention to the tips within the manual.



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Trademarks

EVOC is a registered trademark of EVOC Intelligent Technology Co., Ltd. Other product names mentioned herein are used for identification purposes only and may be trademark and/or registered trademarks of their respective companies.

Warranty Terms:

The warranty on the product lasts for one year. If the user has additional requirements, the contract signed between the two sides shall prevail.

Please visit our website: <http://www.evoc.com> for more information,
or send an email to the Technical Support Mailbox [\(International\)](mailto:support@evoc.com) or [\(Domestic\)](mailto:support@evoc.cn) for consultation.

Hotline: 4008809666

About this manual

Scope of the Manual

The manual is appropriate for EVOC PPC-1261.

Convention

The term “the PC” or “the Product” within the manual usually stands for EVOC PPC-1261.

Instructions

Safety instructions

To avoid property losses or individual injury, please pay attention to the safety instructions within the manual. The warnings within the manual are marked with warning triangle , whose existence is dependent upon the scale of the potential hazard.

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1. Product Introduction

1.1 Overview

PPC-1261 is a 12.1" low power consumption and fanless industrial panel PC. Its front panel is shaped by al-alloy and its al-alloy rear panel also serves as the heat sink.

PPC-1261 contains Intel® ATOM N455 + ICH8M chipset, Intel® low power consumption ATOM N455 CPU (clock speed: 1.66GHz) on-board; 1G DDR3 memory and additional 1G DDR3 memory ICs on the expansion card, up to 2GB. The PC provides five USB ports, four serial ports, touch screen or tempered glass (optional). The LCD screen can be 800x600 LCD screen with common backlight or 1024x768 LCD screen with LED backlight. The product features fully-sealed, fanless and super-slim design. As for software, this product supports EVOC One-Button-Recovery, EVOC MBR anti-virus and EVOC BPI functions.

Deploying modular design, the product is composed of a front screen module and a rear motherboard module. It is ideally suitable for such industries as rubber machinery, solar energy photovoltaic and common industrial automation industries (such as paper making and environment protection).

1.2 Product Specifications

	Item	Definition
Main Functional Index	Microprocessor	Intel® ATOM N455 1.66GH
	Chipset	Intel® ATOM N455+ Intel®ICH8M
	Memory	Onboard 1GB or 2GB/DDR3/800MHz memory
	Display	Supports VGA, LVDS display; LVDS is single-channel 18bit; VGA (DB15) supports hot swap; VGA, LVDS are synchronous output.

Main Performance Index	Network	2 x 10/100/1000Mbps LAN port, LAN1 supports Wake-On-LAN
	Audio	HD standard, supporting MIC-IN/LINE-IN/LINE-OUT
	LCD Screen	<ul style="list-style-type: none"> ● LCD: 12" TFT LCD ● Resolution: 800X600 (1024X768 optional) ● Luminance: 400cd/m2 ● Contrast ratio: 600: 1 ● Viewing angle (CR\geqslant10) ● Horizontal: 70°~70°; Vertical: 50°~60°
	Features	<ul style="list-style-type: none"> ● Port type: USB ● Type: 5-wire resistive
	Touch Screen	<ul style="list-style-type: none"> ● Up to six COM ports (no CAN port); all the COM ports are RS-232 mode by default; COM1~COM4 support RS-232/RS-422/RS-485 modes; ● 4 x USB2.0 port; ● 2 x LAN port; ● 2 x CAN port (optional), CAN port optical-electrical isolation; ● 1 x PS/2 keyboard, 1 x mouse port; ● 1 x VGA port; ● 1 x LINE-IN, 1 x LINE-OUT, 1 x SPEAKER-IN
	External IO Ports	<ul style="list-style-type: none"> ● Dimensions 320mm (L) x 242mm (W) x 70.6mm (H);
	Dimensions	320mm (L) x 242mm (W) x 70.6mm (H);
	Weight	5 Kg;
	Temperature	<ul style="list-style-type: none"> ● Operating temperature: -10°C ~ 50°C ● Extendable Operating Temperature: -30°C ~ 70°C ● Storage temperature: -20°C ~ 60°C ● Extendable Storage Temperature: -40°C ~ 85°C <p>Operating Wet & Humidity: 40°C, 95% RH.</p>

	Humidity	5 %~95% (non-condensing)
	EMC	<ul style="list-style-type: none"> ● Limits of radio disturbance are compliant with GB9254-2008, class A; ● Limits of immunity are compliant with the threshold of GB/T 17618-1998.
	Reliability	<ul style="list-style-type: none"> ● MTBF≥10000h ● MTTR≤0.5h
	Safety	<ul style="list-style-type: none"> ● Meets basic requirements of GB4943.
	Protection Grade	<ul style="list-style-type: none"> ● Screen surface complies with IP65 grade.
	Mechanical and Environmental Adaptability	<ul style="list-style-type: none"> ● Anti-vibration: 5-19Hz/1.0mm amplitude; 19-200Hz/1.0g, three axes. ● Anti-shock: 15g/11ms. Half-sine wave, three times for each of the three axes.
	Power Features	<ul style="list-style-type: none"> ● Input voltage/current: 9~30VDC/3.5~1A; ● Power consumption of the PC: 18W (standby); Power consumption of the PC: 28.7W (burnintest 100%).
	Software Function	<ul style="list-style-type: none"> ● EVOC One-Button-Recovery function (please refer to Chapter 7 of the manual for detailed information); ● EVOC MBR anti-virus function (please refer to Chapter 7 of the manual for detailed information); ● EVOC BPI function (please refer to the motherboard user manual in the CD).

2. Application Scheme

2.1 Transportation

Well-packaged products are suited for transportation by truck, ship, and plane. During transportation, products should not be put in open cabin or carriage. During transshipping, products should not be stored in open air without protection from the atmospheric conditions. Products should not be transported together with inflammable, explosive and corrosive substances and are not allowed to be exposed to rain, snow and liquid substances and mechanical force.

2.2 Storage

Products should be stored in package box when it is not used. And warehouse temperature should be 0°C ~ 40°C, and relative humidity should be 20% ~ 85%. In the warehouse, there should be no harmful gas, inflammable, explosive products, and corrosive chemical products, and strong mechanical vibration, shock and strong magnetic field interference. The package box should be at least 10cm above ground, and 50cm away from wall, thermal source, window and air inlet.

Caution!

Risk of destroying the device!

When shipping the PC in cold weather, please pay attention to the extreme temperature variation. Under this circumstance, please make sure no water drop (condensation) is formed on the surface or interior of the device. If condensation is formed on the device, please wait for over twelve hours before connecting the device.

2.3 Opening the Box and Initial Examination

Opening the Box

Please pay attention to the following issues when opening the box:

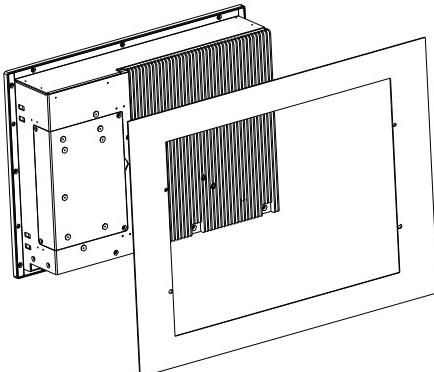
- Do not discard the original packing material. Please keep the original packing material for re-transportation.
- Please keep the documentation at a safe place. The documentation, which is a part of the device, is required for initial device debugging.
- When doing the initial examination, please check whether there are distinct damages to the device caused during the transport.
- Please check whether the delivery contains the intact device and all of the independently ordered accessories. Please contact the customer service when any nonconformity or transportation damages occur.

3. Installation

3.1 Mounting Method

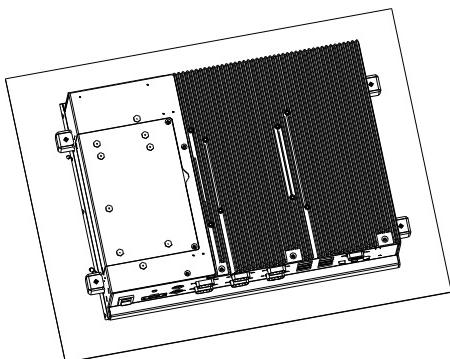
- 19" Rack Mount Desktop Embedded Panel
 Wall Mount VESA Standard Arm Portable
 Others _____

3.1.1 Embedded Panel Snap-fit Mounting



Step 1: Mount the PC on the wall by the holes already drilled, as shown in the left picture (before installation, remove the rubber plug in the holes).

Note: as for the installation requirements, please see the table below.



Step 2: Fix the mounting bracket by screws (spec.: M4*10)

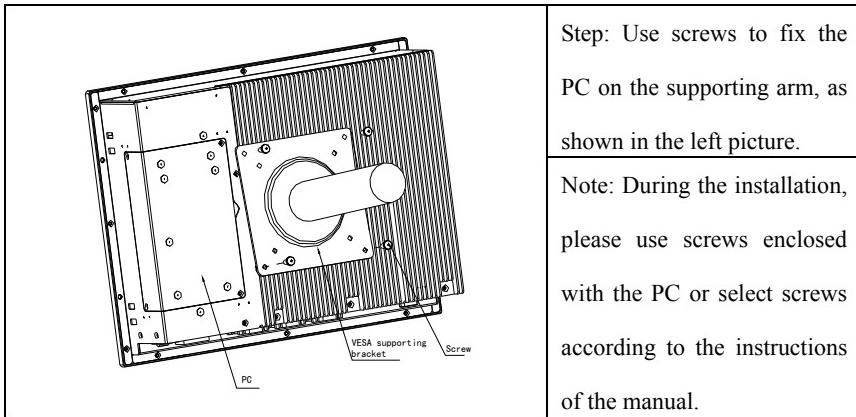
Note: The mounting bracket and the screws are the accessories of the PC.

Material	Hole diameter	Mounting
Concrete	Diameter: 8mm Depth: 60mm	Peg: diameter 8mm; length 50mm Screw: diameter 4 mm; length 50mm
Plasterboard (minimum thickness: 13mm)	Diameter: 14mm	Plaster support: diameter 4 mm; length: 50 mm
Metal (minimum thickness: 2mm)	Diameter: 5mm	Metal screw: M 4: diameter 4mm; length: 15mm

Warning

Please make sure the wall or ceiling shall be able to support at least four times the total weight of the PC. (including cabinet bracket and additional expansion modules)

3.1.2 VESA Standard Supporting Arm Mounting



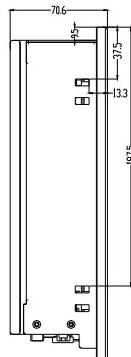
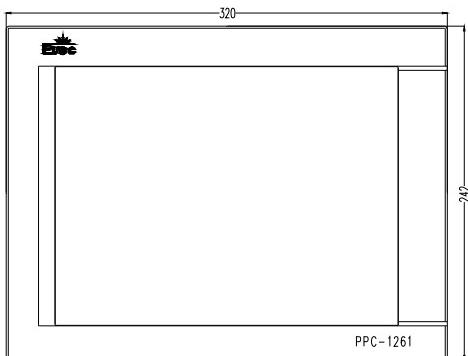
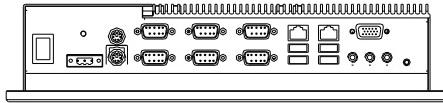
Step: Use screws to fix the PC on the supporting arm, as shown in the left picture.

Note: During the installation, please use screws enclosed with the PC or select screws according to the instructions of the manual.

Warning

The weight bearing capacity of VESA arm shall be at least twice the weight of the PC.

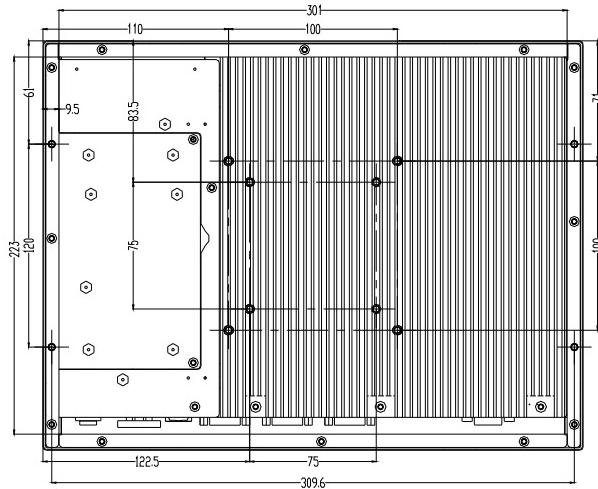
3.2 Outer Appearance and Dimensions



Unit: mm

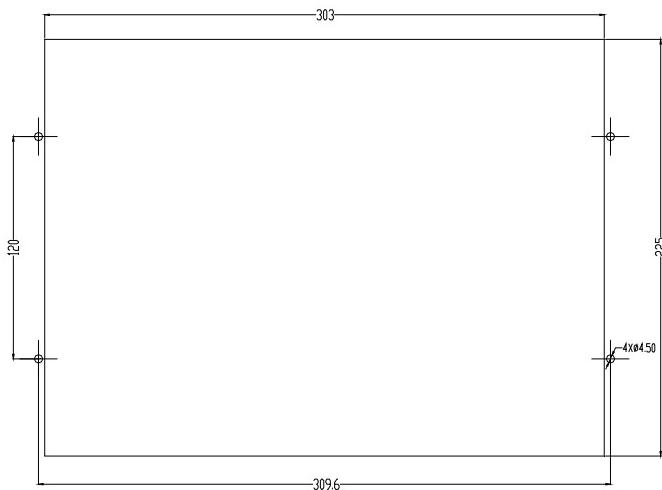
3.3 Installation Dimensions

3.3.1 Installation Dimensions



Unit: mm

3.3.2 Dimensions Drawing for Hole Drilling



Unit: mm

4. Device Connection

4.1 Notices before Connection

Warning

The connected or built-in peripherals with opposite polarities are not allowed.

Warning

The device only operates when connecting with grounded power. No operation is allowed when the device power is ungrounded or only impedance is grounded.

Warning

Rated voltage of the device in use shall be in accord with power feature of the product.

Note:

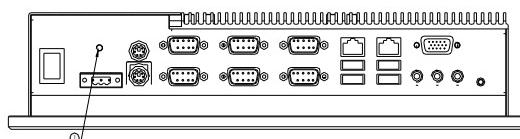
Only the peripheral devices approved for industrial application can be used. When operating the PC, hot swappable IO modules (USB) can be used. The IO devices without hot swap function can only be connected when the PC is powered off.

4.2 Product Grounding

Low impedance ground connection is more helpful to release the interference produced by the external cables, the signal cables or the cables connecting the IO module to the grounding system.

Ground Terminals

The equipotential bonding terminal ① on the device shall be connected with the cabinet installed with the PC or the central grounding busbar on the device. The minimum cross section area of the cable shall be no less

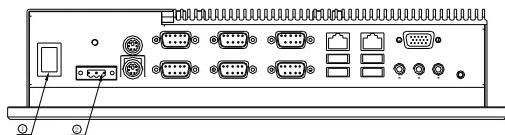


than 5mm², and the maximum ground resistance shall be no more than 0.1Ω.

4.3 Connecting the Device to Power

Steps to connect the device to power:

Connect the power cable to the socket ②, and connect the power switch ①.



Danger

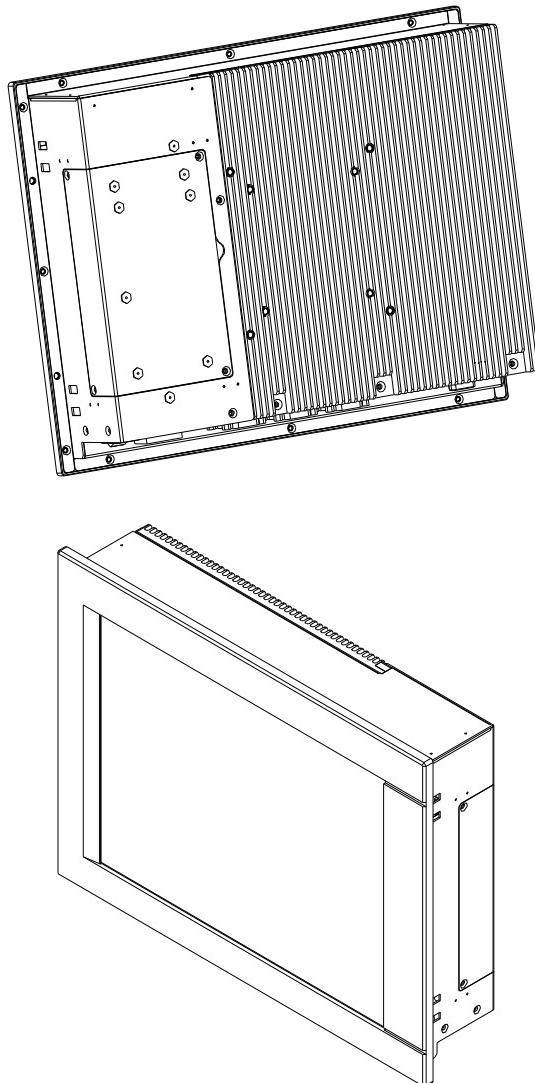
Disconnect the power source and data cable during a lightning storm.

Attention

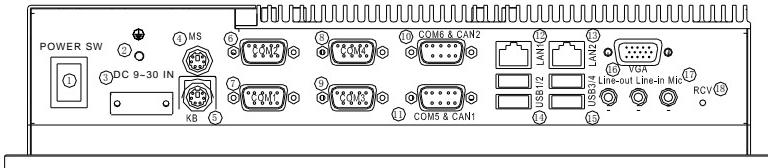
The PC is completely isolated from the power supply only by disconnecting the power connector.

5. Instructions

5.1 Product Outline



5.2 Ports for External Control



1. Power switch	2. Ground screw	3. Power input connector
4. MS	5. KB	6. COM2
7. COM1	8. COM4	9. COM3
10. COM6 or CAN2	11. COM5 or CAN1	12. LAN1
13. LAN2	14. USB1/2	15. USB3/4
16. VGA	17. Audio	18. RCV

5.3 Product Port Definition

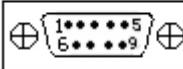
5.3.1 Standard DB9 COM ports

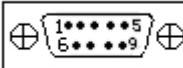
The carrier board provides six DB9 ports (EF-EIO-028PPC-COM provides six COM ports, EF-EIO-028PPC-CAN provides four COM ports + two CAN ports). The ports are double-layer combo socket. J7 (COM1, COM2) and J8 (COM3, COM4) support RS-232/RS-422/RS-485 modes. Their pin definitions are as follows:

Pin	Signal Name		
	RS-232	RS-422	RS-485
1	DCD#	TXN	DATA-
2	RXD	TXP	DATA+
3	TXD	RXP	NC
4	DTR#	RXN	NC
5	GND	GND	GND
6	DSR#	NC	NC
7	RTS#	NC	NC
8	CTS#	NC	NC
9	RI#	NC	NC

J7, J8 (COM1~COM4)

J14 is a duplex port. J14 (COM5, COM6, EF-EIO-028PPC-COM) supports RS-232 or J14 (CAN1, CAN2, EF-EIO-028PPC-CAN). Their pin definitions are as follows:

	Pin	Signal Name
	1	DCD#
	2	RXD
	3	TXD
	4	DTR#
	5	GND
	6	DSR#
	7	RTS#
	8	CTS#
	9	RI#

	Pin	COM Signal Name
	1	NC
	2	CAN_L
	3	CAN_GND
	4	NC
	5	CAN_GND
	6	CAN_GND
	7	CAN_H
	8	NC
	9	CAN_VCC(5V)

Note: CAN ports are optical-electrical isolation port. Their signals, GND and VCC are all isolated.

5.3.2 CAN Port Controller Address Setting

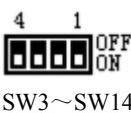
This board provides two CAN ports. Their controller address is set by SW1 (on the back of the board). The default setting is 1100, address 300.

	Code Bit	Status
	1	ON
	2	ON
	3	OFF
	4	OFF

5.3.3 COM Port Mode Selection

COM1~COM4 are fully compliant with RS-232/RS-422/RS-485 (on the back of the board). RS-232/RS-422/RS-485 mode selection can be realized by SW3~SW14 jumper setting. The setup method is as follows:

Pin Setting	Mode Selection		
	RS-232 (default)	RS-422	RS-485
SW3/SW6/SW9/SW12	1 ON	1 OFF	1 OFF
	2 OFF	2 OFF	2 ON
	3 OFF	3 ON	3 OFF
	4 NC	4 NC	4 NC
SW4/SW7/SW10/SW13	1 ON	1 OFF	1 OFF
	2 OFF	2 ON	2 ON
	3 ON	3 OFF	3 OFF
	4 OFF	4 ON	4 ON
SW5/SW8/SW11/SW14	1 ON	1 OFF	1 OFF
	2 OFF	2 ON	2 ON
	3 ON	3 OFF	3 OFF
	4 OFF	4 ON	4 ON

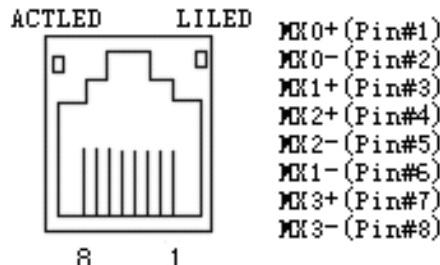


Note: Under RS-485 mode, the data send/receive direction is automatically controlled.

5.3.4 USB Ports

	Pin	Signal Name
J5 (USB1, USB2)	1	+5V
J6 (USB3, USB4)	2	USB_Data-
USB5	3	USB_Data+
	4	GND

5.3.5 Network Ports



J5 (LAN1), J6 (LAN2)

ACTLED (Single color: green)	Network Activity	LILED (two colors: orange/green)	Network Speed
			Green
Flash	Data being transmitted	Orange	100Mbps
Off	No data being transmitted	Off	10Mbps

5.3.6 PS/2 Keyboard/Mouse Port

KM1	Pin	Signal Name	Pin	Signal Name
	1	KB_DATA	7	MS_DATA
	2	NC	8	NC
	3	GND	9	GND
	4	+5V	10	+5V
	5	KB_CLK	11	MS_CLK
	6	NC	12	NC

5.3.5 VGA Port

	Pin	Signal Name		Pin	Signal Name	
 VGA1	1	Red		2	Green	
	3	Blue		4	NC	
	5	GND		6	GND	
	7	GND		8	GND	
	9	NC		10	GND	
	11	NC		12	DDC DATA	
	13	H SYNC		14	V SYNC	
	15	DDC CLK				

5.3.6 Audio Port

	Pin	Signal Name
 AUDIO1	1	LINE_OUT (Green)
	2	LINE_IN (Blue)
	3	MIC_IN (Red)

5.3.7 Power Connector

The carrier board provides one 3P horizontal Phoenix terminal socket (pitch: 5.08mm), which supports single power supply input, with voltage input range: 9V~30V DC. Its pin definitions are as follows:

	Pin	Signal Name
 PWR1	1	GND
	2	NC
	3	VCC

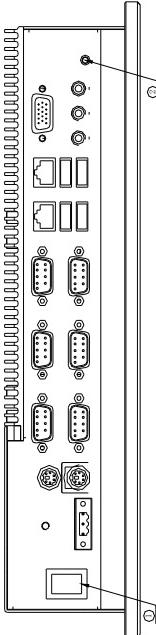
5.4 Operation Control

⚠ Warning

The On/Off button signal will not disconnect PC power supply!

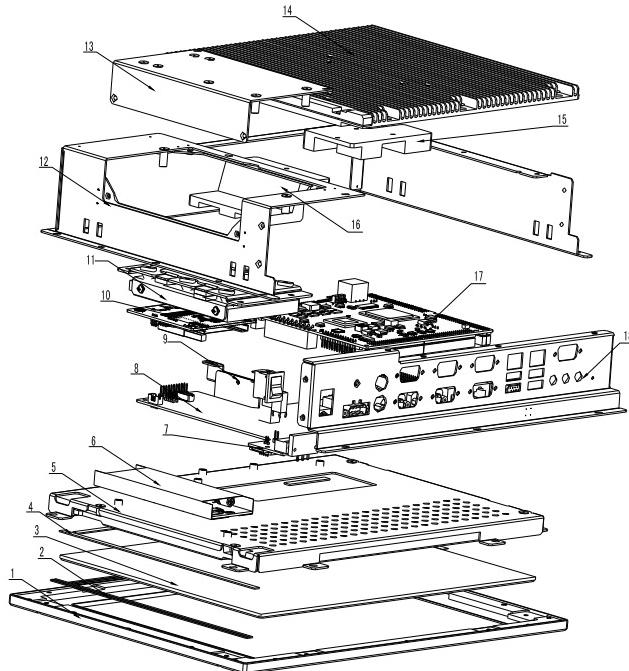
⚠ Caution

When the PC executes hardware reset, data may be lost.

Control Button	Item	Description
	②	The On/Off switch button used to power on the PC.
	②	One-Button-Recovery button. After pressing the power-on switch button, a prompt will appear on the LCD screen to indicate One-Button-Recovery function. Then press SW2 to wait for the One-Button-Recovery interface. As for how to realize this function, please refer to the BIOS Function of this manual.

6. Assembly and Maintenance

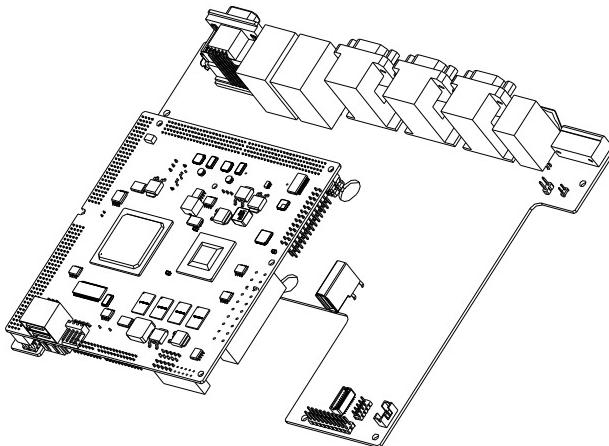
6.1 Overall Assembly



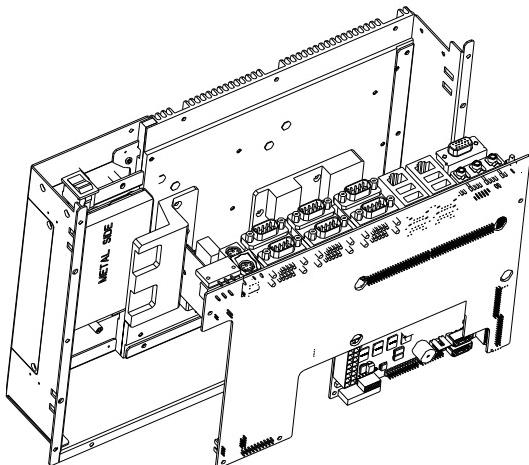
1. Al-alloy front panel	2. Water-proof strip	3. Tempered glass or touch screen
4. Silicone foam	5. LCD assembly	6. Backlight board
7. Touch screen control panel	8.IO board	9. Software dog bracket module
10.CF card (or HDD)	11.HDD (or CF card)	12. Chassis body
13. HDD cover	14. Chassis top cover	15. Motherboard heat sink
16. Power supply heat sink	17. Motherboard	18. IO bracket

6.2 Removal and Installation of the Motherboard

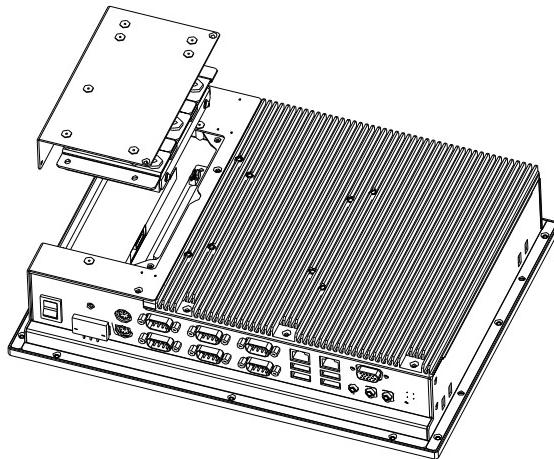
6.2.1 Installing the Motherboard



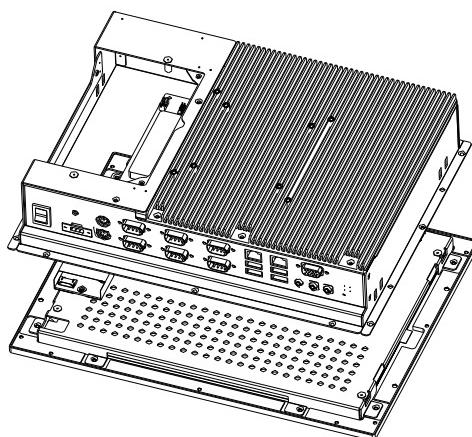
Firstly, assemble the motherboard with the IO board following the above picture, then install the assembled PCB part onto the right position inside the chassis; finally fasten it with screws. Note: During the installation process, anti-static gloves must be worn!



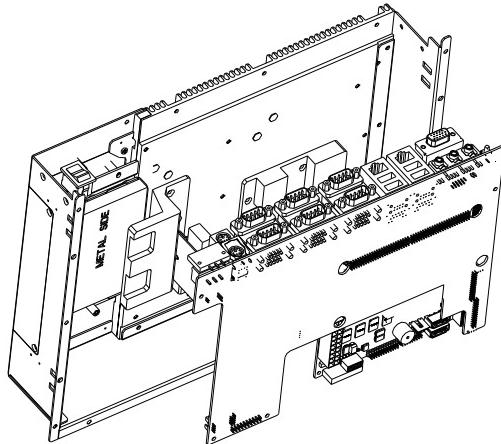
6.2.2 Removal of the Motherboard



1. First, remove the HDD or CF card module following the above picture, then pull out the LCD cable, backlight board cable, touch control panel cable (this cable only exists when there is a touch screen) from the IO board;
2. Take apart the panel from the chassis body as per the following picture;

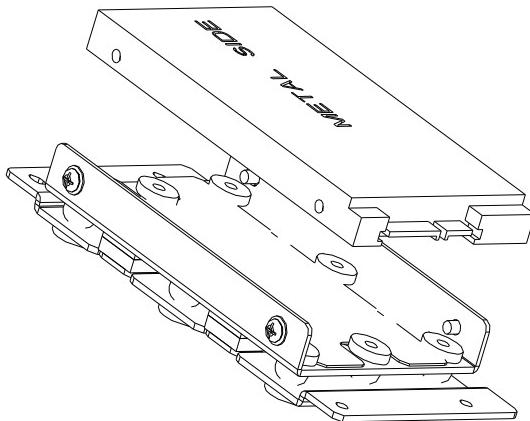


3. Remove the IO board and motherboard assembly from the chassis rear cover, as shown in the picture below;

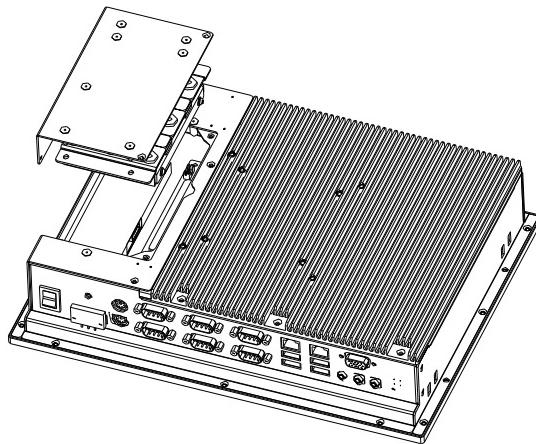


4. Finally, separate the IO board from the motherboard assembly.

6.3 Removal and Installation of HDD



1. First assemble the HDD onto the HDD bracket, as shown in the above picture. Then fix it with the HDD cover lock and install them into the right position as per the following picture (CF card is to be directly installed on the HDD cover);



2. Follow the above picture to dismantle the HDD or CF card module from the chassis, then separate the HDD or CF card from its bracket.



7. EVOC One-Button-Recovery Operating Instructions

7.1 EVOC One-Button-Recovery Operating Instructions

EVOC one-key recovery functions supports to back up and recover the data in various file systems (FAT32/NTFS/EXT2/EXT3/EXT4). The backup configuration is quite flexible; please specify different configurations according to actual requirement. The following instructions only refer to the default settings. The function supports keyboard or “RCV” button operation; the “RCV” button is configured on PPC-1261.

A. Instructions

1. The storage devices described here only refer to the devices supported by EVOC boards or EVOC PCs, including IDE/SATA hard disks, CF cards or DOM disks, etc (USB storage devices are currently unsupported).
2. When only one storage device is installed in PC, it will back up the data in the first partition of the storage device to the last partition, or recover the backup image files in the last partition of the storage device to the first partition.
3. The PC can supports up to three storage devices at the same time: one storage device is set as the prime system disk while the last storage device is set as the secondary system disk. The default backup mode is to save the data in the first partition of the primary disk in the last partition of the secondary disk; while the default recovery mode is to restore the backup image files in the last partition of the secondary disk to the first partition of the primary disk.

When both CF card and hard disk are installed in PPC-1261, the CF card is set as the primary disk of the PC in default and the last hard disk is set as the secondary disk of the PC. When only two hard disks are installed in PPC-1261, the first hard disk is set as the primary disk of the PC in default and the last hard disk is set as the secondary disk of the PC.

4. In PPC-1261, each storage device shall have two partitions, to ensure the successful operation of system backup and recovery.
5. The file system in the partition of the backup disk can differ from that of the recovery disk; however, the file systems exceeding FAT32 /NTFS /EXT2 /EXT3 /EXT4 are unsupported.

6. Please make sure the backup image files are ready when implementing recovery for the first time (that is to say, the data shall be backed up following the foresaid steps). Otherwise, the recovery is invalid.
7. The backup and recovery of the Windows operating system other than Microsoft Windows7 is currently unsupported.

B. Operating Steps:

1. Enable or disable EVOC One-key Recovery Function.

Press “DEL” key to enter the BIOS Setup interface after the power-on interface appears.

- (1) Find the BOOT option in BIOS Setup interface, set the EVOC Backup option to [Enable] or [Disabled] the EVOC One-key Recovery Function.
- (2) As for the implementation on SATA hard disk, please set the operating mode of the SATA hard disk first. Enter Advanced->IDE Configuration->set ATA/IDE Configuration to Enhanced, which is to improve the backup and recovery speed of the hard disk for EVOC One-key Recovery Function. Please restore the setting after system backup or recovery.
- (3) Press “F10” to save and reboot.

2. Enter system backup & recovery interface.

When EVOC One-key Recovery function is enabled, it will prompt “Please Press button <RCV> for System Recovery within 3 Seconds!!”; at that time, press the button <RCV> at the back of the panel PC within 3 seconds and the system will enter system backup and recovery interface.

Note: There are two kinds of silk screen printing for the key of One-Button-Recovery: one is a sign “●←”, the other is “RCV”. The two kinds of silk screen printing are consistent with each other.

3. Implementing system backup

After entering the system backup & recovery interface, it will inquire the user whether to implement system backup. If the user chooses to skip system backup, then it will enter system recovery directly. The operating system will display the



following information:

Welcome to EVOC-Backup-System

Website: <http://www.evoc.com>

* [save] backup the system

* [restore] restore the system

If you want to save image,please press the <RCV> key or type "save"(default:restore)!

- 3.1 Enter save and press Enter or “RCV” button within 10 seconds, system backup will be implemented and the following information will appear:

save_ (Note: it is the command input line and the following information is displayed after inputting the command and pressing Enter to confirm)
Save NTFS
10% completely
Syncing...

When the operating is completed, the following information will appear and the system will reboot after 5 seconds.

Save system success! After 5 seconds to reboot!

Note:

- 1) It is normal if the progress bar is not moving for around 1 minute; the system is operating at the background. Please wait with patience.
 - 2) The time needed for system backup is around 2~10 minutes, which is dependent upon the size of the system disk.
 - 3) If the system prompts “Save system success！”, it indicates that the system has been backed up successfully and the system will reboot after 5 seconds.
 - 4) After rebooting, set the Boot option in BIOS to disable EVOC One-key Recovery Function.
- 3.2 Enter restore and press Enter within 10 seconds, system recovery operation will be implemented. Enter restore and press Enter, the following information will appear:

restore _____ (Note: it is the command input line and the following information is displayed after inputting the command and pressing Enter to confirm)

RestoreNTFS
10% completely
Syncing...

When the operating is completed, the following information will appear and the system will reboot after 5 seconds.

Restore system success! After 5 seconds to reboot!

Note:

- 1) It is normal if the progress bar is not moving for around 1 minute; the system is operating at the background. Please wait with patience.
 - 2) The time needed for system backup is around 2~10 minutes, which is dependent upon the size of the system disk.
 - 3) If the system prompts “Restore system success！”, it indicates that the system has been recovered successfully and the system will reboot after 5 seconds.
 - 4) After rebooting, set the Boot option in BIOS to disable EVOC One-key Recovery Function.
- 3.3 If no character or invalid characters are input within 10 seconds, system recovery will be implemented, which is the same as inputting “restore”.

4. Reference Data from Experiment

The table below lists the data from EVOC one-key recovery function test, which are used for reference only.

Table 1 Value from EVOC One-key Recovery Function Test



NO.	Partition for Backup Object			Partition for Image Saving		Backup Time	Recovery Time	Image Size	Actual Compression Ratio
	Operating System (Standard)	Total Capacity	Used Space	File System	Partition Capacity				
1	Windows xp Professional 32bit Chinese	20975MB	4401MB	NTFS	278GB	10 min. 10 sec.	2 min. 25 sec.	4.09GB	93%
2	Windows xp Professional 64bit English	20975MB	5217MB	NTFS	213G	11 min. 38 sec.	2 min. 56 sec.	4.85GB	93%
3	Fedora 14/ 2.6.35/32Bit	10486MB	886M	EXTFS	10G	34 sec.	27 sec.	808MB	91%

7.2 Instructions for Anti-virus Function

The EVOC MBR anti-virus function is integrated in BIOS, which is well protected from damage from other software (including virus); therefore, it provides excellent defending and safety features. The instructions for the anti-virus function are as follows:

1. During POST period, press “Del” to enter BIOS configuration interface;
2. There is a functional option “Clear MBR Virus Function” in the Security menu of the BIOS configuration interface, which includes three sub-menus:
 - a) Disabled: disable the function of clearing MBR virus;
 - b) Manual: when MBR virus is detected in the hardware system, prompt to users whether to clear the MBR virus during POST period. Choose “Y” to clear the virus; choose “N” not to clear the virus.
 - c) Quiet: when MBR virus is detected in the hardware system, clear the virus automatically without any prompt information.

Regarding the installation of the driver program and the detailed information of the motherboard, please refer to the enclosed CD of the PC.

8. Appendix

8.1 Troubleshooting and Solutions

Common Malfunctions	Possible Reasons	Troubleshooting and Solution
The device is not operating	No power supply	Please check the power supply and the power cable/connector.
	Improper device operating environment	<ol style="list-style-type: none"> Check the environment conditions; Please wait for twelve hours before powering on the
The external display is black	The display has not been turned on	Turn on the display
	The display is under “power saving” mode	Press any key on the keyboard.
	The luminance control is set to “Black”.	Increase the screen luminance by luminance control. Please refer to the instructions of the display for detailed information.
	Power cable or display cable is not connected	<ol style="list-style-type: none"> Please check whether the power cable is correctly connected with the display, the system unit or the ground port. Please check whether the display cable is correctly connected with the display and the system unit. Contact Technique Support if the screen remains black after implementing the above measures.
Incorrect time or date on PC	Incorrect BIOS setting	Follow the power-on prompt and press the key to enter the BIOS Setup; adjust the time and date in BIOS Setup.
BIOS setting is correct while the time and date are	Insufficient backup battery capacity	Replace the battery

incorrect.		
USB device has no response	USB port is disabled in BIOS	Use other USB ports or enable that port.
	USB 2.0 device is connected; however, USB 2.0 is disabled.	Enable USB 2.0.
	USB port is not supported by the operating system.	<ol style="list-style-type: none"> 1. Enable USB Legacy Support for the mouse and keyboard (Legacy USB is supported); 2. For other devices, appropriate USB drivers are required.
The computer is not booted or displays “Boot device not found”	In booting priority of the BIOS setting, the device is not the first priority or the device is not include in the booting device.	Modify the booting priority of the device in the Boot menu of BIOS setting or include that device into the booting priority.
No system disk can be found when powering on	The HDD power cable or data cable is not connected well	Check whether the power cable and the data cable of the hard disk (the hard disk shall be installed with operating system and is bootable) are well connected.
	System files on the hard disk are damaged	Enter the system (usually WinPE system) with a bootable disk; check whether the system in the hard disk is damaged. Reinstall the system if necessary.

Plug and play I/O card, no IO card is detected or no IO card can be used when used again	Poor contact of the slot	Poor contact is usually caused by frequent installation/uninstallation of the PCI or ISA card, unstable fixing or improper dust-proof measures; please remove and install the card for a few times or use another slot.
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